

Appl. No. 09/533,421
Amd. Dated September 13, 2004
Reply to Final Office Action of July 14, 2004

REMARKS/ARGUMENTS

Reconsideration of the rejections set forth in the Final Office Action dated July 14, 2004 is respectfully requested. Claims 1, 3-10, and 12-21 are currently pending and have been rejected.

Claims 1, 6, 10, 15, and 19-21 have been amended for clarity. Specifically, claims 1, 6, 10, 15, and 19-21 have been amended to more clearly recite that communications links are between a plurality of cards. It is noted that in the preambles of the claims, as originally filed, it is clearly stated that data buses act as communications links between a plurality of cards. Hence, the amendments to the claims merely more clearly recite that which is already recited in the preambles of the claims.

Rejections under 35 U.S.C. § 103

The Examiner has rejected claims 1, 3, 6, 10, 12, and 15 under 35 U.S.C. § 103(a) as being unpatentable over Demiray et al. (U.S. Patent No. 5,740,157) in view of Thomas et al. (U.S. Patent No. 6,038,288). The Examiner has rejected claims 4 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Demiray et al. (U.S. Patent No. 5,740,157) in view of Thomas et al. (U.S. Patent No. 6,038,288) and further in view of Quoc et al. (U.S. Patent No. 6,092,214) and in light of the rejections to claims 1 and 10. The Examiner has rejected claims 5 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Demiray et al. (U.S. Patent No. 5,740,157) in view of Thomas et al. (U.S. Patent No. 6,038,288) and further in view of Harris (U.S. Patent No. 5,771,274) and in light of the rejections to claims 1 and 10. Claims 7, 8, 16, and 17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Demiray et al. (U.S. Patent No. 5,740,157) in view of Thomas et al. (U.S. Patent No. 6,038,288) and further in view of Ise et al. (U.S. Patent No. 5,888,586) and in light of the rejections of claims 6 and 15. Claims 9, 18, and 19 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Demiray et al. (U.S. Patent No. 5,740,157) in view of Thomas et al. (U.S. Patent No. 6,038,288) and further in view of Rubino et al. (U.S. Patent No. 6,424,629) and in light of the rejections of claims 1 and 10.

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1. Independent claims 1, 10, 20, and 21, and their respective dependents

Independent claim 1 requires that a method for controlling the operation of a flexible cross-connect system includes monitoring the operational status of cards and communications links between the cards in the system, determining when the operational status of any of the cards or links between the cards indicates that the card or link between the cards is non-operational, autonomously switching from the non-operational card or link between the cards to an associated redundant card or link between the cards, and determining when the non-operational active card or link between the cards requires maintenance. If it is determined that the non-operational active card or link between the cards requires maintenance, the method also includes reporting that maintenance is required.

The Examiner has argued that Demiray et al. in view of Thomas et al. teaches the limitations of claim 1. It is respectfully submitted that contrary to the arguments presented by the Examiner in the Final Office Action dated July 14, 2004, Demiray et al. do not teach of or reasonably suggest that faulty lines such as the communications links of claim 1 are detected. The Examiner has argued that lines 14-49 of Demiray et al. describe a high speed interface A detects a problem in an OC-3 line (12) and indicates to a high speed interface B over a communication link (20) that there is a problem. The Applicant submits that there is no teaching or suggestion that the OC-3 line (12) of Demiray et al. is a communications link between a plurality of cards. In fact, as shown in Fig. 1 of Demiray et al., the OC-3 line (12) is clearly not positioned between a plurality of cards, e.g., a plurality of cards that is part of a flexible cross-connect system for which an operational status may be determined as required in claim 1 of the instant application. As Thomas et al. does not overcome this deficiency of Demiray et al., claim 1 is believed to be allowable over the cited art for at least this reason.

In his arguments, the Examiner has acknowledged that Demiray et al. does not disclose reporting maintenance for a non-operational card or link, but has argue that a combination of Demiray et al, and Thomas et al. somehow teaches the reporting of maintenance for a non-operational card or link. While it appears that Thomas et al. teach of identifying cards within a unit that require replacement (Thomas et al., column 10, lines 28-32), neither Demiray et al. nor

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Thomas et al., either alone or in combination, teach of or suggest determining when a non-operational active card or a non-operational active communications link between a plurality of cards requires maintenance and of reporting that maintenance is required for a card or link between a plurality of cards. Specifically, in the passages of Thomas et al. cited by the Examiner in the Final Office Action dated July 14, 2004, there is no teaching or suggestion of reporting that maintenance is required for a non-operational active card or a non-operational active communications link between a plurality of cards. The Applicants submit that Thomas et al. makes no mention of reporting that maintenance is required on, or even identifying the need for maintenance within, an active communications link between a plurality of cards, and Demiray et al. does not teach of determining an operational status of any communications links between a plurality of cards. Hence, a combination of Demiray et al. and Thomas et al. fails to teach the method of claim 1.

It is respectfully submitted that when it is reported that a non-operational active card or link between a plurality of cards requires maintenance, maintenance may be performed on the card or the link to ensure that issues associated with the card or the link may be corrected. The ability to report that maintenance is required for a card and, further, to report that maintenance is required for a link between a plurality of cards enables issues with both cards and links to be corrected. Since neither Demiray et al. nor Thomas et al., either alone or in combination, teach of identifying non-operational active communications links between a plurality of cards that require maintenance in a fault information display, the Applicants believe that claim 1 is allowable over the cited of record for at least this reason.

Claims 3-5 and 9 each depend either directly or indirectly from amended independent claim 1 and are, therefore, each believed to be allowable over the art of record for at least the reasons set forth above with respect to claim 1. Each of these dependent claims recites additional limitations which, when considered in light of claim 1, are believed to further distinguish the claimed invention over the art of record.

Independent claims 10, 20, and 21 recite similar limitations as recited in claim 1, and are therefore believed to be allowable over the art of record for at least the reasons set forth above

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with respect to claim 1. Claims 12-14 and 18 each depend either directly or indirectly from amended independent claim 10 and are each also believed to be allowable over the art of record for at least the reasons set forth above.

2. Independent claims 6 and 15 and their respective dependents

Claims 6 and 15 each recite a limitation of detecting and reporting when any card or communications link between a plurality of cards has a change in operational status. It is respectfully submitted that no combination of the art of record appears to teach of such a limitation. Demiray et al. teaches of reporting when a card in an A side or a B side is faulty (Demiray et al., column 3, lines 20-25), but Demiray et al. does not appear to teach of detecting when a card or a link between a plurality of cards has a change in operational status. The Examiner has stated, on page 3 of the Final Office Action dated July 14, 2004, that if an entire system consists only of the A and B cards shown in Fig. 1 of Demiray et al., then the fault detection and reporting will account for any card or link in the system. There appears to be no teaching of detecting a change in operational status, such as a change from a working status to a fault status.

The Applicant submits that Demiray et al. does not teach of fault detection or reporting that accounts for links between the cards. Demiray et al. also does not teach of reporting a change in operational status for a card or for a link between a plurality of cards. Thomas et al. does not appear to overcome the deficiencies of Demiray et al., and while Thomas et al. appears to teach of identifying and reporting when any card requires replacement (Thomas et al., column 10, lines 15-34), Thomas et al. does not appear to teach of detecting and reporting when any card or communications link generally has a change in operational status. Thomas et al. does not appear to teach of or reasonably suggest any detecting or reporting of any status relating to communications links. In the passages of Thomas et al. cited by the Examiner, Thomas et al. states that maintenance arbitration software identifies cards within units that require replacement (Thomas et al., column 6, lines 28-32), and do not appear to reasonably suggest that the maintenance arbitration identifies links of any sort. Additionally, Thomas et al. also does not appear to teach of or reasonably suggest detecting and reporting when any card (or

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communications link) has a change in operational status. Since neither Demiray et al. nor Thomas et al., alone or in combination, teaches of detecting and reporting when a card or a communications link has a change in operational status, claims 6 and 15 are each believed to be allowable over the art of record for at least these reasons.

Claims 7 and 8 depend from independent claim 6, and claims 16 and 17 depend from independent claim 15, and are each believed to be allowable over the art of record for at least the reasons set forth above with respect to claims 6 and 15. Each of these dependent claims recites additional limitations which, when considered in light of claims 6 and 15, as appropriate, are believed to further distinguish the claimed invention over the art of record.

3. Independent claim 19

Independent claim 19 recites a method which includes determining when a non-operational active card or a non-operational active communications link between a plurality of cards requires maintenance, and reporting that maintenance is required for the non-operational active card or the non-operational active communications link when it is determined that the non-operational card or the non-operational communications link requires maintenance. As discussed above with respect to claim 1, neither Demiray et al. nor Thomas et al., alone or in combination, appears to teach of or even reasonably suggest such limitations. It is respectfully submitted that the addition of Rubino et al. to Demiray et al. and Thomas et al. does not overcome the deficiencies of Demiray et al. in view of Thomas et al. Accordingly, claim 19 is believed to be allowable over the art of record for at least these reasons.

Claim 19 further requires maintaining a connection map that indicates statuses of nodes with a network such that when it is determined that the operational status of a card is non-operational or a communications link is non-operational, the connection map is updated. It is respectfully submitted that although Rubino et al. appear to disclose a routing table (Rubino et al., column 2, lines 14-34), and teach that logical connections are updated to map a destination to an alternate logical connection, no combination of the art of record teaches of or reasonably

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suggests updating a connection map when it is determined that the operational status of a card or a communications link between a plurality of cards is non-operational. Specifically, in the passage of Rubino et al. identified by the Examiner, there is no indication that a routing table is updated in response to a card or a link between a plurality of cards being non-operational. Since neither Demiray et al. nor Thomas et al. teaches of determining when a non-operational active card or a non-operational active communications link between a plurality of cards requires maintenance, no combination of the cited art reasonably suggests that a routing table is updated in response to a card or a link between a plurality of cards being non-operational.

In the Final Office Action dated July 14, 2004, the Examiner has admitted that Demiray et al. do not expressly disclose having a connection map. The Applicants submit that Thomas et al. also do not appear to teach of having a connection map, let alone a connection map that is updated when it is determined that a card is non-operational or a communications link is non-operational. Since no combination of the art of record teaches of or reasonably suggests maintaining a connection map that is updated when it is determined that a card or a communications link is non-operational, the Applicants submit that claim 19 is allowable over the art of record for at least this additional reason.

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Conclusion

In view of the above, the Applicants believe that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below. If any fees are due in connection with the filing of this amendment, the Commissioner is authorized to charge such fees to Deposit Account 50-1652 (Order No. CISC794).

Respectfully submitted,



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